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INVESTIGATION OF EMERGING TECHNOLOGIES IN LUXURY BRANDS E-COMMERCE

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ABSTRACT

Contemporary technological developments have enabled the display devices through their 3D capability to provide a massive amount of obtainable visible information by portraying the content in a photorealistic and interactive manner. E-commerce is one of the daily activities that is expected to be significantly benefited from the aforementioned emerging technologies, since it requires rich data representation and real-life imitating user-experience through intuitive interaction between consumers and virtual products. As such, it presents a fresh opportunity for luxury brands particularly, which often adopt unconventional strategies to promote and provide unique services to consumers.

This paper explores the trends that influence customers' e-shopping decision-making process with particular interest in luxury brands and the current promoting methods adopted by these firms in contrast to the rising 3D technologies. Additionally, the study discusses the employment of Human-Computer Interaction (HCI) and real-time 3D visualization approach on luxury retailing, and suggest possible advantages of implementing the proposed system through 3D web-applications.

Keywords: HCI, 3D Visualization, Luxury Marketing.

1 INTRODUCTION

E-commerce is a relatively new form of commerce that requires advance visualization and interaction techniques, to provide customers with more accurate information about the products. Luxury brands, and particularly those that have adopted e-purchasing services, face challenges preserving their prestige amid their faithful clients, whilst simultaneously providing competitive facilities in the online environment. Meeting consumer finer desires is one of the main priority concerns of these high-end companies thus they strive to give opportunities to the customers for item personalization with a view to allow customization and integrate parts of their customer individuality within their end product. A small number of luxury companies have already launched online product customisation, the presentation and extent of available options for visualisation and customisation are however very limited.

This study investigates the effectiveness of developing a novel HCI e-purchasing interface for luxury brands to be presented in 3D enabled monitors, with embedded volumetric virtual reality (VR) real-time interactive product visualisation. This system is expected to enhance customers' online-shopping experience and achieve superior final product presentation. The latter would contain customizable user information data to define the product characteristics rather than rely on the uncertainty of a user's imagination for visualising the customized final product.

2 BACKGROUND

2.1 Luxury Definition and Value

It is argued that "luxury" is a very proportional concept, because it is associated with humanistic parameters and socio-economical distances. It is defined as anything conducive to comfort, pleasure, sumptuous-

ness and/or life enhancement, however inessential. Additionally, luxury products are often regarded as a sign of high socio-economic status, thus termed “positional goods”, specifically pertinent for luxury items with limited general accessibility (Investment Terms 2012).

There are several factors intertwined in defining the value of luxury brands. Shukla and Purani through an explicit diagram (see figure 1), show the main elements that contribute to the perception formula of brand value. They observe that different societies would be unevenly influenced by these factors, since social and economical factors will have a prominent role (Shukla and Purani 2011).

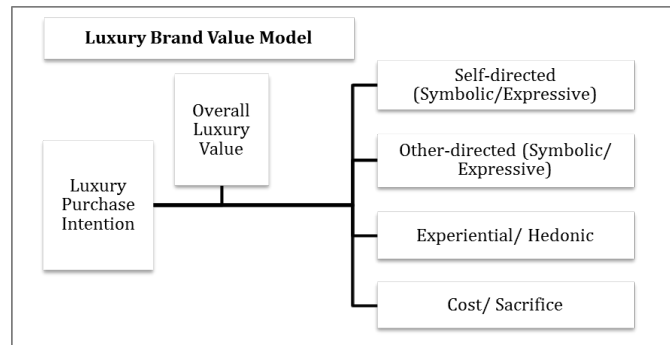


Figure 1: Luxury Brand Value Model by Shukla and Purani 2011.

2.2 Main Factors Affecting the Purchasing Decision of Luxury Brands in the Online Environment

The monetary value of a luxury brand is certainly one of the basic shopping motivations for customers, however, there are also other factors that influence consumers' shopping decisions. Interestingly there are overlaps and differences in the motivation factors affecting shopping intentions and adoption appearing between online and physical shopping. These could be attributed to the different characteristics of both means and environments of purchasing processes. Since the website has a non-physical presence, functional, and uncluttered web application, that provides useable and clear information is deemed essential (Park and Kim, 2003). Furthermore user-friendly interface design, easy navigation methods and guidance as well as attractiveness are important website features that enhance online shopping experience and affect consumer shopping motivations. Sejin and Stoel (2012) identified four main factors affecting the perception of e-shopping apparel quality: website content functionality and atmospheric/experiential value, which have the greater stimulus on the shopping satisfaction and contribute in electronic shopping intention, in addition to the security, privacy and customer service, which affect the intentions only.

Indeed, Luxury brands establish strong relationship with customers through commitment and trust. However in electronic shopping, these two factors appears less trusty and let a chance for doubt and uncertainty (Park and Kim 2003).

2.3 Online Shopping Attracting People

The traditional shopping (i.e. the physical visit) presents undoubtedly advantages over the online one, like the immediacy, trustiness, and the direct verification through physical contact with items. Nevertheless, in this form of shopping it is rather difficult to compare a variety of products in a worldwide level. Hassouneh and Brengman (2011) conducted a survey in Belgium and identified the elements that enhance the online shopping: convenience, social factors (unwanted social contact- pushy sales workers), unlimited possibilities and product diversity, affordability, freedom of choice and store environment. In Addition, it is time saving, powerful research instrument, lower research cost and could be flexible in defining the desire language (Chang 2005).

Natel found that 26% of online consumers will be keen to purchase outfits form the sites that offer 3D

virtual models (2004). High-income customers use the Internet heavily and rely on its services as the main source in finding information about luxury products. For instance, figures show that up to 90% of affluent consumers frequently buy products online. The young generations -whom are technologically oriented- also have huge presence online through social networks, blogs and websites. This generation will be the future potential customers of these brands, therefore they have to be targeted early.

2.4 Luxury Brands Online Marketing Orientation

Similar marketing strategies has been followed by all high-end brands. It can be observed that the majority of them have opted for the design and development of a website as the main platform for traffic and clients engagement, while ensuring permanent updates and improvements for the contents.. The high level of flexibility -unrestricted place or time- and great aptitude of the Internet technology is basically making it easier to adopt, and is confirmed by the figures of the Office For National Statistics indicates, which found that 77% of households have Internet access, which is very significant at the present time (2011).

Luxury brands' houses like Louis Vuitton (LV), Burberry, Dior, Chanel, Yves Saint Laurent and many more others are using the social media like Twitter, Facebook (FB), and YouTube, which has been considered as a successful tool for promoting luxury products. Similarly, the current market penetration of smart-phones and e-commerce applications, offers to leading retailers a unique selling platform through phone shopping and advertising applications. This indirect and fast approach is very useful under the actual economic issues hindering the world market, which might exert an influence, in terms of speed, on the retailers' entry and expansion decisions.

2.5 Luxury Brands Persuasion Towards TV Commercials

A luxury brand such as Louis Vuitton justifies its avoidance attitude towards TV commercials by stating that "it is not the right place to present in" because LV believes that their products have to be commercialised only to the interested customers. Such a position appears to be the same persuasion for luxury brands in general; however, TV properties and features improved substantially ; the interactive smart TV or the web-based TV are providing real advantages and novelties to their customers, without neglecting as well the advent of 3D screens, with which both advertising and purchasing are taking new trends.

2.6 Luxury Brands Online Products' Customisation Existed Service

Products customisation is a great service provided by many luxury brands in stores, which established by some brands online and received impressive acceptance from the audience, concretised by a notable increase in sales. LV Mon Monogram, for instance, is an online service introduced in 2008, which has got the benefit of e-commerce and social media, has used an interactive customisation FB application to personalize LV bags to add stripes and initials to selected bags. This gives customers a touch of exclusivity by keeping with the brand's high-end positioning while lasting the inspirational and the luxurious concept. Coach bags, Christina Aguilera charms, Reebok and Adidas shoes can also be customized online.

The current methods in visualising and customising products online are presented as 2D images and flashes. Although some companies offer 360 interactive orientations visualisation for the product, they have not applied it for products customisation. Notwithstanding, 3D real time interactive visualisation is highly expected to enhance the online shopping experience. Interestingly, McCormick stated that luxury brands working toward improving their online retail service like offering augmented reality, which provide 3D life-size products (McCormick, 2010). Similarly, Youreality software offers great opportunities to their clients, which are able now to visualise the available furniture in 3D -rotating, zooming and scaling-, customising it -altering the colour or material- and previewing it in their own home through augmented reality technique. It is however necessary to underline that, the aforementioned systems do not offer the amount of realisation detail and interactivity required for the particular market segment.

3 THE PROPOSED SYSTEM

One major issue that might hamper the consumer in e-shopping decision-making is the lack of realistic-visual and tactile information about products. Information visualisation plays a significant role in human computer interaction (HCI). Typically, 3D VR environment is used to generate photo-realistic items to enhance the visualisation of objects and help to examine it comprehensively. According to Algharabat and Dennis (2010) the 3D Product Authenticity (3DPA) “is a psychological state in which virtual objects presented in 3D in a computer-mediated environment are perceived as actual objects in a sensory way”. Adhering to the aforementioned facts and observations we aim to use different visualisation methods in order to achieve the best possible photo-realistic result. Furthermore, it is believed that, presenting these information in 3D monitors will not only simplify and enrich the overall experience but equally capitalise of the unique feature of stereo-capable monitor. The exact visualisation of the volumetric photorealistic objects and their properties’ simulation will allow the user to manipulate the objects interactively (in real time) in addition to the capability to personalise and customise the content from the choices provided.

The proposed system will be designed in order to significantly enhance e-retailing. As such it will offer real-time manipulation user-interface, taking into consideration the luxury brands’ strategies and methods in e-commerce and products’ customisation. The system interaction will be enriched with multimodal interfaces such as visual, auditory, and haptic so as to enhance the user-experience, (see figure 2).

The intention behind the system is to enable potential users to obtain more comprehensible and clear information through real-time 3D investigation of the photo-realistic virtual. The system aims to provide this service through online environment or through fully-immersive VR customer service points. To this end the use of gesture recognition is considered the best way for direct manipulation interaction with the VR objects since it requires minimum efforts to learn how to operate the system.



Figure 2: Approximate Expectation for the Proposed System

4 THE EXPECTED ADVANTAGES OF APPLYING THIS SYSTEM

Proceeding from purchasing decision motivations and products value estimation considerations, customers’ demands and desires have to be saturated to get the best of their shopping journey. According to Kim and Forsythe, high level of 3D virtual model improves audience reaction towards e-purchasing (Kim and Forsythe 2008). Suh and Chang mentioned the fact that, in comparison with multiple-pictures and video-clips interfaces, 3D VR interface produce greater Telepresence for consumers (Suh and Chang 2006).

4.1 Enrich Online Purchasing Overall Experience

There have been frequent suggestions from researchers for the use of 3D models to advance the visualisation and the interactivity of the web shopping. Providing 3D virtual models are expected to attract more customers towards online shopping and the probability of revisiting the website again for purchasing

(Kim and Forsythe 2008), as It gives the consumer the ability to visualize and manipulate the products in so close manner to the physical interact with products in actual stores (Algharabat, 2010).

The interactivity provided by a website might offer extra advantages to firms and customers like-wise since it provides information customisation, image manipulation, communication facilities entertainment (Fiore *et al.* 2005) and enjoyment (Li *et al.* 2001). Demery *et al.*, (2003) stated that companies, for instance, eBages and Wal-Mart who are using rich media like 3D flashes have registered substantial increase (between 10% to 50%) in their web shopping sales. Accordingly, Algharabat and Dennis (2010) concluded that the applicability of the 3D model designed for e-commerce area will not be affected by neither gender category, study background or/and the level of education.

4.2 Enhances The features of Products Visualization in the consumers' conception

Using 3D visualization is estimated to be an effective in enhancing the characteristics and the features of products visualization in the consumers' conception. Li *et al.* (2001) suggested that 3D virtual simulation in general are better in advertising than the classic ones because consumers can get better understanding for the products. A great amount of information, manipulation and customization of the products, from zooming and rotating to material changing can be offered within the 3D models (Kim and Forsythe 2009).

4.3 Positive Impact on Utilitarian Value, Hedonic Value and Behavioural Intention

A previous research project conducted by Algharabat and Dennies (2010) -that investigated the effects of 3D operationalization in e-retailer on the behavioural intention- claimed that they developed 3D flashes to show a product (laptop) in an interactive way with the ability to animate the color of it. It stated that the control and the animated colour had a great influence on 3D authenticity. "3D authenticity is a physiological state in which virtual objects presented in 3D in a computer-mediated environment are perceived as actual objects in a sensory way". 3D authenticity itself has a major impact on hedonic and utilitarian values, which on their parts have a significant effect on consumer behavioural intention. Algharabat and Dennies classified the effect of 3D products authenticity on value opinion; utilitarian and hedonic values. Enhancing the consumer awareness towards products' features, attributes and characteristics as well as improving the customer involvement and seeking for gathering extra information about the product (Fiore *et al.* 2005) are all pour in the point of utilitarian value of 3D model (Algharabat and Dennies, 2010).

In contrast to the above statement, Kim and Forsythe (2008) claimed that the gained hedonic value in 3D product visualization is superior to the capability of utilitarian value production. The higher interactivity the consumer gets with the web graphic, the more expected hedonic value is perceived (Fiore *et al.*, 2005). Kim and Forsythe argued also that the main attraction for the customer towards the 3D products are entertainment, enjoiment and fun.

4.4 Risk Limitation

The unavoidable limited visualisation of the products in the online shopping contexts generates an expected occurrence of risk in purchasing that cannot be neglected (Levy and Weitz 2008). Increasing the interactivity in the online retailer within the advantages of the new technologies should lessen customers' indecision and reduce potential risks (Manganari *et al.* 2009). Available information about online products considerably decreases impression of product performance risk (Suh and Chang 2006).

Furthermore, the data provided throughout 3D presentation of the products help in the imagination of the products (Fortin and Dholakia 2005) and decrease the expected risk (Kim and Forsythe 2008).

5 CONCLUSION

Luxury brands have their exceptional position in the worldwide economic markets and seek to be always accessible albeit with a proper exclusiveness. The purchase of Luxury products intentions and motivations have various social, economic and psychological destinations. These brands have embraced several ap-

proaches to provide unrivaled entire experience for consumers, to satisfy their desire of differentiating themselves from others and their insistence and persistence for being treated uniquely. As e-commerce is one of the recent successful steps of high-end companies that benefited both companies and consumers, more efforts need to be produced to keep the services unique and up to date with the technology.

The paper proposed online user interface with new means of image representation, which are believed to corporate effectively in better items visualisation and understanding of consumers when purchasing or when customising and personalising luxury items in online shopping environment. These optical information will be designed for 3D monitors representation to enhance the luxury digital shopping process and quality.

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